

Quiz #1 – Analytic Geometry

Calculate the distance between the line and the point. Round your answer to one decimal place.

$$y = -x + 5, (-1, -2)$$

$$m_{\perp} = 1$$

$$y = x + b \text{ sub } (-1, -2)$$

$$-2 = -1 + b$$

$$b = -2 + 1$$

$$b = -1$$

$$\textcircled{1} y = -x + 5$$

$$+ \textcircled{2} y = x - 1$$

$$\frac{2y}{2} = \frac{4}{2}$$

$$y = 2$$

$$\text{sub } y = 2 \text{ into } \textcircled{1}$$

$$y = -x + 5$$

$$2 = -x + 5$$

$$x = 5 - 2$$

$$x = 3$$

\therefore the POI is $(3, 2)$

\therefore the distance between the line and the point is 5.7 units

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

$$= \sqrt{(3 - (-1))^2 + (2 - 2)^2}$$

$$= \sqrt{(4)^2 + (4)^2}$$

$$= \sqrt{16 + 16}$$

$$= \sqrt{32}$$

$$= 5.7$$